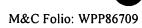


## **CLAIMS:**

- 1. A filamentous fungus transformed with a heterologous sequence of DNA, the fungus being capable of expressing the heterologous DNA, characterised in that the heterologous DNA is under the control of a filamentous fungus transcription promoter active substantially only during stage 1, or later, of the development of the fruiting body of the fungus.
- 2. A fungus according to claim 1, which is A. bisporus.
- 3. A fungus according to claim 1 or 2, wherein the promoter is that of *abst1*.
- 4. A fungus according to claim 1 or 2, wherein the promoter is that of *rafe*.
- 5. A fungus according to claim 1 or 2, wherein the promoter is that of mag2.
- 6. A fungus according to claim 1 or 2, wherein the promoter comprises the sequence of SEQ ID NO 12, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.
- 7. A fungus according to claim 1 or 2, wherein the promoter comprises the sequence of SEQ ID NO 13, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.
- 8. A fungus according to any preceding claim, wherein the DNA is operably linked with a terminator comprising the sequence of SEQ ID NO 35, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.
- 9. A fungus according to any preceding claim, wherein the DNA is operably linked with a terminator comprising the sequence of SEQ ID NO 36, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.



- 10. A fungus according to claim 1, wherein the DNA is operably linked with a promoter comprising the sequence of SEQ ID NO. 12 and a terminator comprising the sequence of SEQ ID NO 35, or a mutation or variant of either, or a sequence which hybridises thereto under conditions of at least 60% stringency.
- 11. A fungus according to claim 1, wherein the DNA is operably linked with a promoter comprising the sequence of SEQ ID NO. 13 and a terminator comprising the sequence of SEQ ID NO 36, or a mutation or variant of either, or a sequence which hybridises thereto under conditions of at least 60% stringency.
- 12. A fungus according to any preceding claim, wherein a selectable marker is linked with the heterologous DNA.
- 13. A fungus according to any preceding claim, wherein the heterologous DNA is native DNA.
- 14. A fungus according to any preceding claim, wherein the heterologous DNA is selected such as to affect characteristics of mushroom crop production.
- 15. A fungus according to any preceding claim, wherein the heterologous DNA encodes: antibodies, including other diagnostic material; secondary metabolites, such as lectins, pesticidal compounds such as *Bacillus thuringiensis* toxin (Bt toxin); therapeutic compounds such as vaccines, steroids, heterocyclic organic compounds; biological macromolecules, such as interferon, endostatin and insulin; and medical enzymes, such as thrombolytics and cerebrosidases.
- 16. A method for the production of a substance expressible by a DNA sequence, wherein the sequence is operably associated with a filamentous fungus transcription promoter active substantially only during stage 1, or later, of the development of the fruiting body of the fungus, the sequence and promoter being expressibly incorporated in a filamentous fungus, the fungus being cultured to fruition and the product being harvested.

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17. A method for the production of a substance expressible by a DNA sequence, wherein the sequence is operably associated with a filamentous fungus transcription promoter active substantially only during stage 1, or later, of the development of the fruiting body of the fungus, the sequence and promoter being expressibly incorporated in a filamentous fungus, the fungus being cultured to fruition and the product being harvested, and wherein the DNA and/or fungus is as defined in any of claims 1 to 15.